Country: Hong Kong
Environmental Market Brief

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Summary

Hong Kong has invested more than US$7.5 billion in tackling air pollution, water pollution and solid waste treatment problems. In the near future, the government is expected to spend more than US$1 billion on solid waste management solutions and technologies. Business opportunities exist in waste recycling & separation technologies, biological & thermal treatment, as well as landfill operation. In terms of sewage treatment infrastructure, Hong Kong will move forward with Stage 2A of its Harbor Area Treatment Scheme in 2008, which calls for further disinfection (including UV disinfection) as well as expanded chemical treatment capacity. Emission control equipment for stationary and mobile sources will be in high demand from now until 2010, as Hong Kong attempts to meet a predetermined stringent emission standard.

Market Demand

Solid Waste Management

Since Hong Kong's three strategic landfills will be full in the next five to ten years, the Hong Kong Government (HKG) announced a policy framework for municipal solid waste management in December 2005. The framework encourages waste separation & recycling, and incinerating or sending the remaining to the landfill. This policy framework opens up the huge waste reduction, recycling and treatment technologies market and offers outstanding business opportunities for US companies.

The HKG's initiatives to encourage waste separation and recycling include:

- Implement waste disposal charges
- Possible financial incentives to support the recycling industry
- Introduction of the "Producer Responsibility Scheme" – manufacturers, distributors, and sellers all bearing the responsibility of waste minimization
- Introduction of the "Polluter-pays Principle"
- Establishment of an EcoPark to provide long-term land and governmental support for recyclers
- Encouraging the "green (products made with recycled materials) procurement policy"

There will be a rise in waste reduction and management system demand in anticipation of the implementation of the above initiatives in 2006 and the EcoPark gradually coming online in phases starting from late 2006.

EcoPark

The construction cost for this 20 hectares-EcoPark is approximately US$40 million. The HKG is now seeking expressions of interest from potential recyclers to get a more comprehensive understanding on:

- Recyclers' preferences on recyclable materials to be processed and recycling processes to be adopted;
- Recyclers' needs including tenancy arrangement, utilities requirements, superstructure requirements, etc.
- Recyclers' expectations of the EcoPark

The HKG prefers value-added recycling technologies. The information gathered through the expressions of interest will further shape the operation of EcoPark. Interested US technology providers could influence the establishment of the EcoPark by expressing their interest by April 20, 2006 by visiting this web site:

www.epd.gov.hk/epd/english/environmentinhk/waste/prob_solutions/eco_eoi.html

Integrated Solid Waste Management Facility (ISWMF)

Looking further ahead, the HKG will build a new Integrated Solid Waste Management Facility (ISWMF) within the next 10 years, which will comprise of these waste management technologies: incineration, biological treatment

(composting), mechanical treatment (waste separation). An incinerator with the capacity of handling more than 5,000 tons of solid waste per day will make up the core component of the ISWMF.

Landfill Extension Projects
The HKG has started commissioning studies on its landfill extension projects in 2005. A U.K. engineering consulting firm's (Ove Arup's) branch in Hong Kong has started the study on the Northeast New Territories (NENT) landfill. The HKG is now in the process of identifying a second engineering consulting firm to take charge of its West New Territories (WENT) landfill extension study project. Environmental Resources Management (ERM), a U.S. engineering consulting firm, is a possible candidate. The landfill extension projects will have a total capital cost of US$1 billion, and probably incorporate the design, build and operate elements. Commissioning of these extension projects will begin in early 2010's and take approximately five years to complete.

Wastewater Management
The majority of Hong Kong's wastewater undergoes primary treatment provided through the Harbor Area Treatment Scheme (HATS). Stage 1 of HATS, with a capital cost of more than US$1 billion, was completed in December 2001. Stage 2A of HATS requires the provision of additional disinfection, the construction of more sewage tunnels and expansion of existing chemical treatment capacity whereas Stage 2B requires the installation of biological treatment facilities. The HKG's preferred option is to have a centralized system at Stonecutters Island instead of building additional treatment plants. Although the Hong Kong Government has mapped out the future phases of HATS, but it has no plans to start the project before 2008. The following is the HKG's timetable on HATS Stage 2:

Preferred Option for HATS Stage 2

Stage 2A	Phased Implementation	Capital Cost	Completion
	Provision of disinfection	US$1.05 billion	2008-2009
	Sewage tunnel construction		2013-2014
	Expansion of existing chemical treatment capacity		2013-2014
Stage 2B	Biological Treatment Facilities	US$1.40 billion	2020-2021

Sources: Hong Kong Environmental Protection Department

Owing to their geographic proximity, Hong Kong and Guangdong (the province across the border) are both putting a concerted effort in tackling pollution in their shared streams, rivers and South China Sea. The HKG's decision on whether to move forward with Stage 2B of HATS is largely dependent on the polluted flows from the Pearl River Delta region in Guangdong. If the water quality in the Pearl River Delta region continues to deteriorate, there is little incentive for the HKG to spend money on additional wastewater treatment infrastructure.

Air Quality Management
Hong Kong's air pollution is a regional problem. The HKG has agreed with Government in Guangdong to cut emissions of major air pollutants in the Pearl River Delta Region by 2010. Taking 1997 as the base year, both governments want to reduce RSPs (respirable suspended particulates) and volatile organic compounds (VOCs) by 55 per cent each, sulphur dioxide (SO2) by 40 per cent and NOx by 20 per cent - all by 2010. Both sides aim to cut emissions from industry, motor vehicles and power plants. US companies can consider working with Hong Kong environmental companies to market clean manufacturing and desulphurization / denitrification technologies in Southern China.

Market Data

Hong Kong's Overall Investment on Improving the Environment

Total Capital & Operations Cost of Waste Disposal Facilities and Total Capital & Aftercare C for Restoration	4,600

Capital Expenditure on Sewage Infrastructure	2,800
Expenditure on Tackling Air Pollution	250
Anticipated Investment from 2004 to 2010	1,400

All figures are in US$ million. The above statistics are unofficial estimates.
Sources: Hong Kong Environmental Protection Department

Best Prospects

Solid waste:
- ❑ Incineration
- ❑ Mechanical-biological treatment (waste sorting & separation)
- ❑ Biological treatment (composting)
- ❑ Waste-to-energy technologies

Water/wastewater:
- ❑ Water filtration equipment (such as biological filtration)
- ❑ Disinfection technologies (UV, membrane & ozonation)
- ❑ Analytical instruments

Air:
- ❑ Analytical instruments
- ❑ Vehicle emission particulate reduction devices
- ❑ Desulphurization / denetrification technologies

Key Suppliers

There exists little or no environmental equipment manufacturing in Hong Kong. The city depends heavily on imported technology and equipment.

Solid Waste Management
The key competitors for future Hong Kong projects are SITA (France) and Onyx (France), which both have significant and long term waste management operations and related activities in Hong Kong. SITA, a global leader in waste management has a joint venture with the Swire Group, one of Hong Kong's largest conglomerates. Onyx, also a global leader in waste management, has a joint venture with CITIC Pacific, a leading infrastructure focused conglomerate with ownership based in Beijing. Both companies have extensive experience dealing with the Environmental Protection Department (EPD) and other government departments.

Japanese companies including Mitsubishi, Ebara and Nippon Steel have shown keen interest in providing incinerator and related thermal treatment technologies. Mitsubishi offers incineration technologies and is looking into forming a consortium to bid on the ISWMF project. Ebara offers a wide range of thermal technologies including: stoker-type incinerators for Municipal Waste, Stoker-type incinerator facilities equipped with plasma ash melting system, refuse-derived fuel production facilities, fluidized bed gasification and ash melting, gasification of waste plastics, fluidized bed boiler for energy recovery from high calorific value wastes etc. Other companies from Australia, Canada, USA and European have also engaged the HKG. Canada and the USA have also introduced a number of biological technologies for composting.

Traditionally, most of the companies competing for waste management projects are quite large. Smaller technology suppliers usually lack sufficient finances and range of technical and management expertise. They normally form partnerships or a consortium with waste management facilities operators to submit full proposals to the Environmental Protection Department. These companies have influenced the HKG's thinking on possible

approaches to addressing appropriate and feasible technologies for Hong Kong. US waste management technology suppliers should consider using this tactics to expand into Hong Kong.

Wastewater Treatment
U.S. water treatment products have a good reputation in Hong Kong in terms of quality and technology. U.S. engineering firms have captured over 40% of the consulting contracts for water treatment projects in Hong Kong. State-of-the-art US equipment is in a favorable position to compete in Hong Kong. US Filter (now a subsidiary of Siemens Waste Technologies) has installed chlorine scrubber systems at five water treatment plants in Hong Kong; and Osmonics has supplied many filtration equipments.

Cutting-edge technology providers are able to participate in Hong Kong's water and wastewater treatment projects. Trojan Technologies, a Canadian based company, has sold UV disinfection systems to Hong Kong. Another Canadian filtration technology pioneer, Zenon, is well positioned to compete in Hong Kong as soon as there are concrete plan to use membrane bioreactors. Japan has been participating in Hong Kong's water treatment projects for several decades. Recently, Mitsubishi Rayon provided hollow fiber membranes for wastewater treatment.

Air Quality Management
General environmental awareness and tightening environmental regulations in Hong Kong are generating a market for environmental monitoring and analyzing equipment. Strict environmental monitoring in the areas of wastewater, air, indoor air quality, and fresh water, requires state-of-the-art testing equipment. In 2005, HK imported more than US$350 million worth of analytical instruments from the United States. The major players in the high-end environmental monitoring and analyzing equipment product segment are the United States, Japan, Germany and the United Kingdom, while Taiwan, Singapore and China share the low-end product market.

In order to meet the stringent emission standard in 2010, the Hong Kong and Guangdong Governments have been encouraging power plants to invest in desulphurization and denitrification equipment, and motor vehicle owners to use emission control systems (particulate filters and catalytic reduction technology). While being technologically advance, the United States suppliers still face strong competition from their European counterparts.

Prospective Buyers

Environmental Protection Department (EPD)
The EPD is the government administrative body overseeing and managing the Hong Kong public sector waste and wastewater management projects and is the key body for all future purchasing decisions. EPD's web site is:
www.epd.gov.hk/epd

Power Plant Operators
For desulphurization and denitrification equipment, Hong Kong's two power plant operators, the China Light & Power Co. Ltd. and Hongkong Electric Co. Ltd. are the primary users. Their web sites are:
www.clpgroup.com
www.hec.com.hk
Owing to the difficulties in retrofitting old boilers and the space constraints, both power plants are considering gradually switching to LNG for power generation.

Market Entry

Role of Consulting Companies
Equipment suppliers interested in this market normally maintain an excellent working relationship with engineering consulting firms that are active in Hong Kong's environmental projects to obtain up-to-date project information and equipment requirements. Normally, an environmental project involves a feasibility study, design, project management, construction, equipment installation, operation, and sometimes aftercare (such as landfill restoration). The HKG purchases equipment and services through a competitive bidding process. Normally, the

engineering consulting company winning the detailed design contract will manage the whole project including specifying equipment requirements. It is, therefore, desirable for a US newcomer to work with these engineering firms.

Several international engineering consulting firms are active in Hong Kong's environmental projects, including Environmental Resources Management (ERM), Camp, Dresser & McKee International (CDM), Black & Veatch (formerly Binnie Black & Veatch), Maunsell, Ove Arup & Partners Hong Kong Limited, and Scott Wilson. Local companies, such as ATAL Engineering, act as sub-contractors.

Market Issues & Obstacles

No Import Tariff or Duties - Hong Kong

Hong Kong is a duty free port. There are no import tariffs on solid waste management equipment. For more information, please visit the Hong Kong Customs & Excise Department's web site:

www.customs.gov.hk/eng

Standards

Few product safety standards are required for the domestic Hong Kong market. Currently, building materials and electrical/mechanical supplies have to meet British standards. However, Hong Kong is gradually recognizing other standards so U.S. companies seeking to export to Hong Kong should check with potential agents and customers to determine exact standards required.

Labeling and Marking Requirements

Non-tariff barriers such as labeling requirements and standards are minimal.

Selling to the Hong Kong Government

The Government Logistics Department (GLD) is the central purchasing, storage and supply organization for the Government of the Hong Kong Special Administrative Region. The GLD spent US$621 million in 2004, with American products winning approximately 21 percent of the total procurement contracts (about US$129 million). GLD purchases are fully consistent with the provision in the World Trade Organization Agreement on Government Procurement (WTO GPA). US companies interested in selling their products to the Hong Kong Government should register with the GLD in writing or register online through the Electronic Tendering System. The contact point for GLD is:

Supplies Officer (Supplier Record)
Government Logistics Department
9/F, North Point Government Offices
333 Java Road, North Point
Hong Kong
Phone: (852) 2231-5289
Fax: (852) 2807-2764
Email: hktender@gld.gov.hk
Website: http://www.gld.gov.hk/eng/services_2.htm

The U.S. Commercial Service at the U.S. Consulate General in Hong Kong regularly reports on government tenders. These reports are available via the National Trade Data Bank. For information, call the U.S. Department of Commerce at 1-800 stat-usa.

Commercial Service Hong Kong's Pollution Prevention & Energy Efficiency (P2E2) Initiative

Many of Hong Kong environmental problems have been created by rapid industrial growth in southern China, such as air pollution from stationary sources like factories and power plants. These problems can be solved by the introduction of new pollution prevention, pollution control and energy efficiency technologies, with financing provided through loan guarantees from multilateral banks endorsing the P2E2 program.

In May 2005, U.S. Commercial Service in Hong Kong organized a highly successful international conference on pollution prevention and energy efficiency. Officials and businesses from both the Pearl River Delta and Hong Kong participated. As a result of that event, a new business model was developed specifically for Hong Kong and the Pearl River Delta (PRD), which builds on five years of cooperation between the Chinese State Environmental Protection Administration and the U.S. Environmental Protection Agency. Called "P2E2," this new environmental finance model allows Hong Kong-owned factories in China, in sectors as diverse as textiles, electronics, food processing, iron, steel, cement and a number of other sectors, to adopt new technologies with no upfront capital costs. These new P2E2 technologies will improve industrial productivity, reduce operating costs and reduce air, water and ground pollution. This innovative model does not require manufacturers and power plants to commit upfront capital. Instead, savings in energy and raw materials, as well as increases in productivity and profitability, more than offset the costs of the pollution abating, energy saving improvements. This is a model where everyone wins, including the general public. It should appeal to Hong Kong's business sector, and Hong Kong can play an important role in improving the natural environment as well as its business environment.

The P2E2 model, once applied, creates new buyers for environmental and energy technologies, as well as new export opportunities for U.S. financial, legal and engineering services firms. U.S. companies that are potential P2E2 technology suppliers and service providers are encouraged to contact the U.S. Commercial Service in Hong Kong for program updates and export opportunities.

Trade Events

Eco Expo Asia - International Trade Fair on Environmental Protection
Date: Oct 27 – 30, 2006
Venue: Asia World Expo, Hong Kong
Website: www.ecoexpoasia.com

Resources & Key Contacts

Environmental Contractors Management Association
www.ecma.org.hk

Green Council
www.greencouncil.org

Hong Kong Environmental Industry Association
www.hkenvia.org

Hong Kong Green-Manufacturing Alliance
www.gmehk.net

Hong Kong Sustainable Communications Association
www.hksca.org

Hong Kong Waste Management Association
www.hongkongwma.org.hk

For More Information

The U.S. Commercial Service in Hong Kong can be contacted via e-mail at: olevia.yim@mail.doc.gov; Phone: (852) 2521-1467; Fax: (852) 2845-9800 or visit our website: www.buyusa.gov/hongkong.

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